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## The Impact of the Reassignment of Four United States Navy Frigates on the Aquidneck Island Housing Market as Measured by Testing the Social Indicator Model

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The Impact of the Reassignment of Four  
United States Navy Frigates on the Aquidneck  
Island Housing Market as Measured by Testing  
the Social Indicator Model

by  
Amintha K. Cinotti

A Thesis Submitted in Partial Fulfillment of  
the Requirements for the Degree of  
Master of Community Planning

University of Rhode Island  
1984

Master of Community Planning

Thesis Research Project

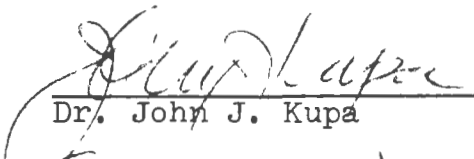
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## INTRODUCTION

How social indicator analysis can help planners address the impact of change on a community is the model that this thesis will test. The impact of four United States Navy Frigates on the Aquidneck Island housing market will be addressed through the social indicator model. This thesis will attempt to determine if social indicator analysis is an appropriate technique to formulate policy and evaluate previous decisions and data.

Social indicator analysis has been used as a planning method to evaluate data and form the basis of policy decisions. The various model components, which will be of various economic, physical, political and demographic natures, will be viewed independently and interdependently as they react to and effect each other. This model is one of the few that attempts to measure social change over time using quantifiable data.

The study question to be addressed was initiated as a direct result of bargaining between the State of Rhode Island and the United States Navy. The announcement that the Naval Training and Education Center facility (NETC), would host between four and seven active frigates by 1990 was a satisfying political gesture that was awarded to Rhode Island after the State lost its bid for a battleship group to Staten Island, New York. At present because the class of frigates has not been announced, the exact number of crewmembers and families to be relocated to Newport has not been determined. It appears that between 360 and 550 crewmembers will be relocated if two



frigates are assigned and up to 1260 to 1750 crewmembers if seven frigates are reassigned to NETC facility. It does seem apparent that the influx of this population will put increased pressure on the Aquidneck Island housing market, and particularly on the Island rental market. The Aquidneck Island rental housing market will be the housing market area this study examines through use of the model.

There exists on Aquidneck Island, especially in the City of Newport, a shortage of low and moderate income apartments. The existing problem is accentuated by an increasing tourist population, a summer seasonal population, as well as the college population of Salve Regina College that currently cannot be fully accommodated by the College. Natural increase and migration have also indicated a steadily increasing year-round population. The three Island communities have also adopted a more cautious attitude toward growth that are reflected by interviews with local zoning officials.

Some of the issues of significance in this study include whether this potentially large population will promote change in land use patterns, the economy and the quality of life, as well as the already burdened rental market which will be further strained by the possible influx of up to 4,000 more full-time residents. While the Navy can house some of these crewmembers on-board ship and at the Navy installations themselves, the approximately 1490 units of housing under Naval control are presently without vacancy. Since the 1973 Naval Reassignment from Newport, approximately 2000 units have been destroyed and the General Services Administration has recently turned the Naval

Gardens property over to the Town of Middletown for rehabilitation into elderly and low-moderate income housing.

The consequences of the relocation decision will include impacts upon building, jobs and competition in the job market. The factors that are to be examined in the social indicator model should provide some direction for potential courses of action for these three communities. The rental housing situation will also effect the lives of recent and long-term residents of Aquidneck Island and may determine who will remain in the area based on such variables as the quality of life and amenities; who gets priced out of the housing market is a critical underlying issue.

Social indicator analysis and the model constraints for this study will be tested to see if the interaction of data, policy instrument indicators, non-manipulative indicators, output descriptive indicators and side effects can adequately show relationships, negative or positive and lead to possible policy guides and suggestions. The evaluation of previous policy decisions will also be attempted by the social indicator model as an additional guide to policy information.

## CHAPTER I

### PROBLEM - BACKGROUND

#### AND POLICY HISTORY

##### The Navy and Aquidneck Island - Policy History

The United States Navy presence has been felt in Aquidneck Island since 1885, when the U.S. Naval War College was established on Coaster's Harbor Island. This, along with U.S. Army presence at Fort Adams, marked the beginning of a partnership and mutual dependence between the military, particularly the Navy, and the residents of Aquidneck Island.

Aquidneck Island is composed of the City of Newport - population 29,259; the Town of Middletown - population 17,216 and the Town of Portsmouth - population 14,257.<sup>1</sup> All three communities have been established since the late 1600's and except for Newport, retail, agriculture and light industry makes up their economic base. Newport relies primarily in service trades which have been generated by the tourist activities cultivated over recent years.

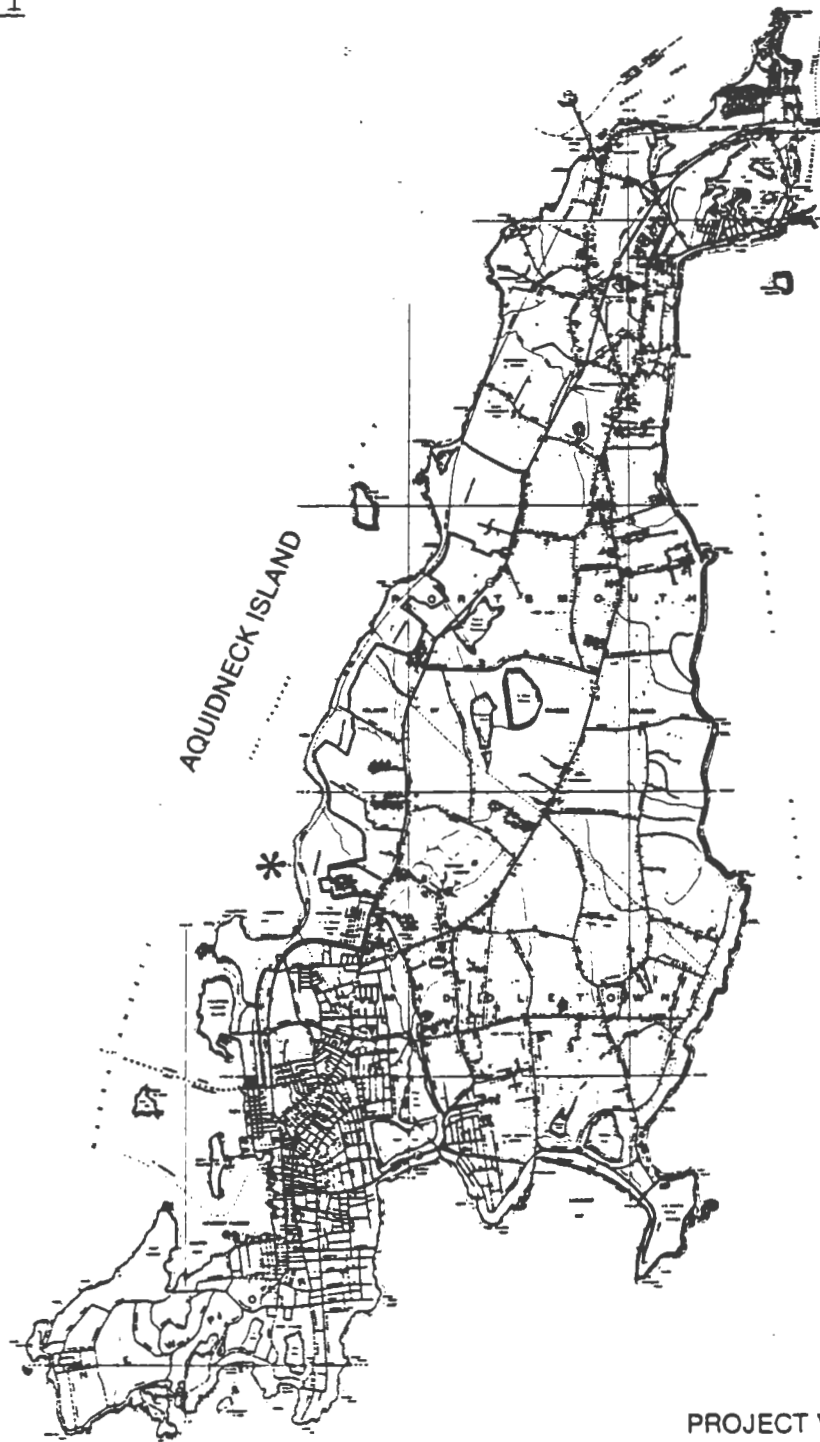
The Island itself is approximately 44 square miles in area and has some of the most interesting and beautiful natural vistas in the State. It has long been known for shipping access and the deep water port of Newport as well as its commercial fishing fleet that is local as well as regional in nature.

Official Naval activity began during the Revolutionary War and continued through the War of 1812 and the Mexican War. The faculty and student body of the U.S. Naval Academy was transferred to Newport in 1885 during the Civil War and it was at this time the Naval War College was established. By 1869, an experimental torpedo station was established on Goat Island which operated for 83 years and reached its production peak during World War II, producing eighty percent of all torpedos used during that action. Naval expansion began in 1881, when Coaster's Harbor Island was bought from the City of Newport, and was followed by the 1913 acquisition and construction of the Naval Hospital adjacent to the entrance to Coaster's Harbor Island; Coddington Point was also acquired for recruit training during the World War period.<sup>2</sup>

Until the World War II era, the Navy owned approximately 500 acres on Aquidneck Island, principally in the City of Newport but beginning in the 1940's Navy expansion moved north to Melville (Portsmouth), where fuel facilities were expanded and a boat training center was established.<sup>3</sup> (See Map I).

In 1941, the Naval War College complex was officially designated a Naval operating base and it was during this period to 1969 that the build up of 43 active ships occurred. These 43 ships made up the Atlantic Fleet of U.S. Navy and were dispersed between Newport and the Quonset Naval Air Station.<sup>4</sup>

MAP I



PROJECT VICINITY  
SOURCE: STATE OF RHODE ISLAND  
SCALE: UNKNOWN  
\* NETC

Source: Naval Education and Training Center

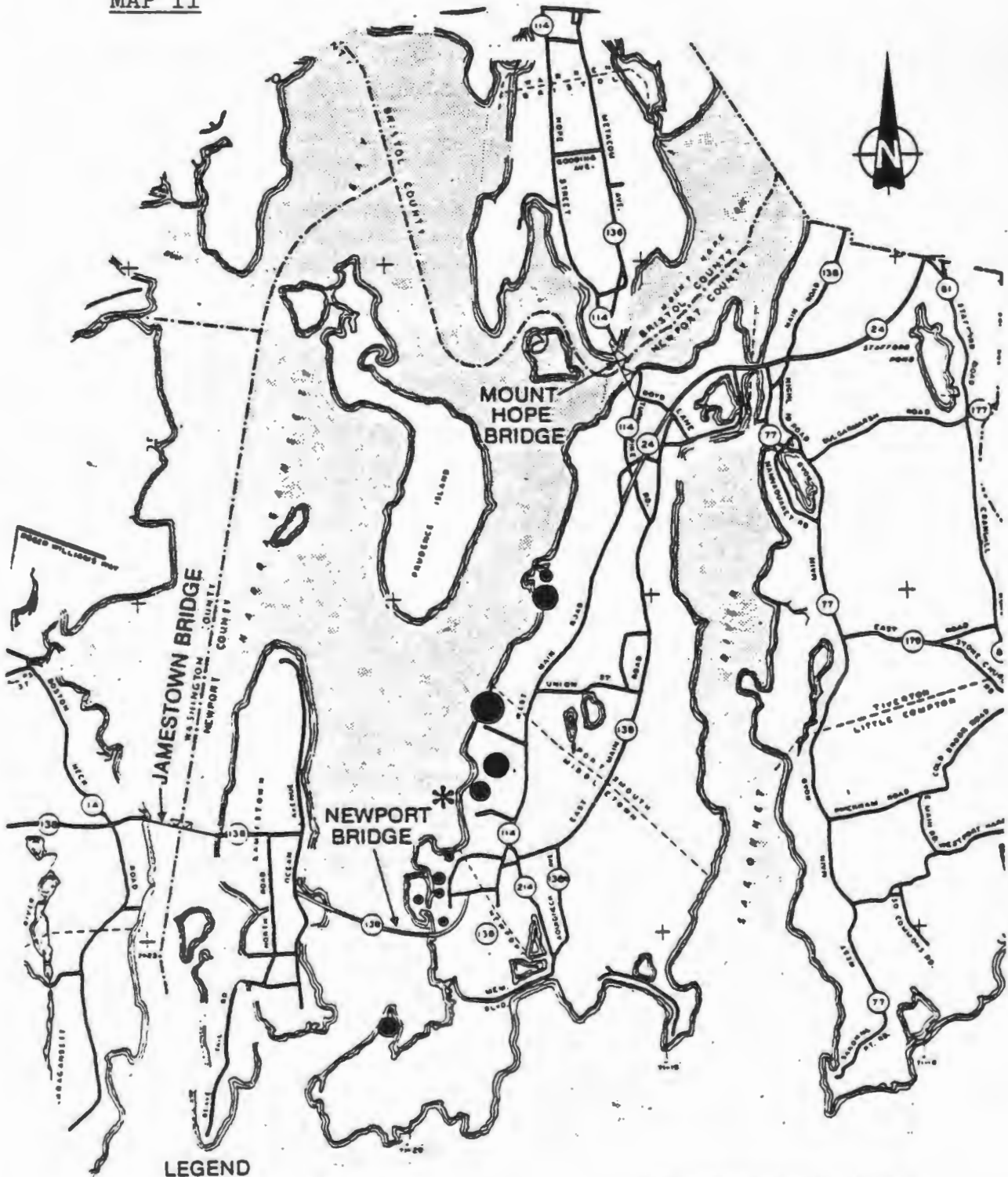
The Navy in Newport had a build up of 39 ships with a complement of 1,685 officers and 12,009 crewmen. The fleet in Newport was made up of:

- 7 - Guided Missil Frigates
- 3 - Guided Escort Ships
- 5 - Destroyers
- 4 - Fleet Oilers
- 1 - Combat Support Ship
- 1 - Repair Ship
- 2 - Ammunition Ships
- 2 - Fleet Frigates<sup>5</sup>

During the period of World War I through the 1950's the Naval War College concentrated principally in traditional training methods of surface warfare, principally for Commissioned Officers. The War College itself, was contained and still is, on Coaster's Harbor Island and it was not until World War II that enlisted recruits were trained at the Newport base.

The World War II period of acquisition brought the total land area owned by the Navy to 2,100 acres, at a cost of approximately \$80,000,000.<sup>6</sup> Base expansion at this time included a large building program that made the former base the small City it is today. Though most facilities have since been updated, demolished or moved to new quarters, it was during this period that the Commissary, Exchange, social clubs for varying ranks, gas stations, convenience stores and dormitories were built. Fort Adams, Naval Gardens, The Anchorage, along with most of the Naval Base housing, was also completed during this period. (See Map 2). The

MAP II



LEGEND

- 20 UNITS      ● 200-300
- 20-100       ● 300 OR MORE
- 100-200

NOTE: \* LOCATION OF HOUSING AREAS ARE APPROXIMATE

MILITARY HOUSING AREAS  
 SOURCE: NAVAL FACILITIES  
 ENGINEERING COMMAND  
 SCALE 1" = 1.6 MILES  
 \* NETC

Source: Naval Education and Training Center

Naval Education and Training Center (NETC) and the deactivated Naval Base, today maintains a fire department, a public works department, and the Naval Regional Medical Center, that provides general clinical in-patient and out-patient care.

During the World War II period, the officers and crewmen assigned to Newport were billeted in their assigned ships. Officer and enlisted recruit trainees were housed in ships when possible or in dormitories built during this period. Men and their families assigned to duty at the Newport Naval Base often lived off-base in one of the three Island communities. It has been estimated that during World War II, approximately one-half of all men and women serving in the U.S. Navy passed through Newport at some point.<sup>7</sup>

This level of activity was continued through World War II and throughout the 1950's and 1960's. During this period the Navy was the largest employer on Aquidneck Island and in the North Kingston area. At this time the Navy, as an industry, was actively courted and protected by both local, State and Federal level politicians. The Navy was the base of the Rhode Island economy and seemed to be immune to the inflationary cycles effecting such industries as manufacturing. The Navy also brought in a substantial amount of Federal impact aid that was used by local and State school boards and public works departments to maintain and improve existing programs and facilities. This impact aid was granted to local communities to help decrease the burden on programs and facilities that the Navy population had brought to bear.



The effects of the Navy on the local merchants was enormous. The Navy created a specialized industry that catered to their needs alone. Those in this category included Military tailors and outfitters, saloons catering to the military; used car dealers; furniture stores and a large segment of the real estate industry. It has been estimated by the Newport Chamber of Commerce that these businesses depended on up to eighty percent of their income from the Navy.<sup>8</sup>

The impact on rental housing during the period from World War II to 1973 has been estimated at over twenty-one percent of the rental housing units on Aquidneck Island being leased by the Navy as well as two percent of the owner-occupied units. The Navy also employed approximately 500 civil-service employees and 700 non-civil service civilian positions on Aquidneck Island alone.<sup>9</sup>

#### The 1973 Reassignment of the Cruiser-Destroyer Fleet

In 1973 the Atlantic Fleet home-ported on Aquidneck Island and in Quonset was reassigned to the three southern ports of Norfolk, Virginia; Charlestown, South Carolina and Mayport, Florida. The basis for this decision was a strategic one. Strategically spreading the fleet throughout the East Coast would reduce travel time along the Coast in case of attack and would offer better protection for the East Coast as a whole, this decision, offered as strategy, seemed instead to be the redeployment of all ships with few left in Rhode Island and none in Massachusetts and New Hampshire.

The 1950's and 1960's in Rhode Island were marked by promilitary attitudes by local, State and Federal legislators. Noteworthy was Rhode Island Senator Theodore Francis Green, who was at the forefront of supporting pro-Navy legislation in Congress and was Rhode Island's watchdog in the Congress, always trying to cultivate and bring in new ships and facilities. The same can also be said of neighboring Massachusetts Congressman and Legislator John McCormick, who was also a vocal supporter of the Navy in the Northeast, particularly in his own district which included the Boston Navy Yard.<sup>10</sup>

The sixties marked a change of leadership in Rhode Island; Senator Green was replaced by Senator Claiborne Pell, and in 1963 a change in emphasis was starting to take place. During 1963, Senator Pell took President John F. Kennedy on a helicopter tour over Quonset and tried to persuade the President to station a squadron of Polaris submarines here. The President seemed amenable to the idea, but Southern Congressional forces were gathering strength and lobbying very hard to have the fleet expanded in their own areas.<sup>11</sup>

The Polaris submarine squadron was never assigned to Quonset and with anti-Vietnam pressure very heavy in the New England states, the Southern faction in Congress seemed to gain more and more power over location decisions. The 1969 Nixon election brought now Senator John Chafee to the position of Secretary of State, but with little avail for the State of Rhode Island. The Southern political forces in the Congress and a vintage World War II fleet did not

help Rhode Island's chances for expansion. The Vietnam War was draining any money for repairs and there was pressure from the Pentagon to scrap the antiquated Fleet in Newport.<sup>12</sup>

In November, 1970, Admiral Elmo Zumwalt, recommended to Chafee that Newport and Boston be among bases to be closed, with the Quonset-Davisville complex also on this list of closures. The 1973 Presidential Election seems to have assured the closing of the Newport and Quonset-Davisville facilities. On April 17, 1973, the Pentagon announced the transfer of the Cruiser-Destroyer Fleet out of Newport and the closure of the Quonset Air Station.

The effects of this closing on Aquidneck Island have been far-reaching and have set new policy directions for the three Island communities. The impacts of the decision were mainly in terms of housing, employment and payroll losses. Aquidneck Island lost 10,996 jobs and \$274,635,314 payroll in the ten years since the closing. Immediate concerns at the time included business closings, tax losses (both State and City) and an overall depressed economy that would not be attractive to new investors and developers.<sup>13</sup>

The feeling at the time was one of shock and outrage, with many local residents feeling that the decision was politically based not strategic. It was also felt that Rhode Island's poor election showing for Nixon had not helped an already precarious situation. Panic was the rule of the day, with newspaper headlines warning of impending economic doom.<sup>14</sup>

### Newport 1973-1983

The impact of the 1973 decision to close the Newport Naval Base and Quonset Air Station had implications that were felt statewide as well as locally. There have been numerous reports written by State, Local and Federal agencies between 1974 and 1975 trying to measure and find alternative ways to deal with the impact on the economy.

Some of the more interesting research findings that were reported came from the U. S. Navy itself. The Navy was able to place in some perspective much of the economic disaster news that was forecasted by various agencies. The Newport County Chamber of Commerce predicted through survey results that fifty percent of the 1,000 small businesses on Aquidneck Island would be forced to close, it also predicted a seventeen percent unemployment rate by the end of 1974, caused by Naval withdrawal, without extraneous factors such as inflation and manufacturing shutdowns. However, this rate was not reached on Aquidneck Island in the 1974 or in any year.<sup>15</sup>

Disparity in forecasting also helped circulate and formulate faulty conclusions regarding the economic problem at hand. The civilian agencies and the U.S. Navy agencies all seemed to have different figures concerning job loss and payroll loss. (See Table I).

Table I - 1973 Job and Payroll Figures<sup>16</sup>

	<u># of Military Jobs to be Relocated</u>	<u># of Civilian Jobs Lost</u>
Aquidneck Island Officials 1973	11,000	500
U.S. Navy, 1973	<u>13,500</u>	<u>500</u>
Difference	2,500	-0-

The following 1983 figures are in contrast (See Table II) seem to be accurate and are generally agreed upon by both local officials and the U.S. Navy.

Table II - 1983 Revised Job and Payroll Figures<sup>17</sup>

	<u># of Military Jobs to be Relocated</u>	<u>Payroll</u>
1972	20,900	496,829,177*
1983 - Present Jobs (Payroll)	<u>9,334</u>	<u>222,193,863</u>
Actual loss	10,966	274,635,314

\*Adjusted for 1982, allowing for inflation, actual 1972 dollars were \$128,046,584.

The Real Estate market was very hard hit by the Reassignment. As stated before, up to twenty-one percent of all rental housing was left vacant, with up to three percent of the single family homes left empty by 1974. In 1973 this number accounted for nearly fourteen percent of the total units in the City of Newport. Coupled with this economic factor was also the per capita income in 1973. Even with the Navy, Newport, in particular of the three Island communities,

was a poor community, particularly when compared with others in the State of Rhode Island. In 1970, the City was fourth from the bottom among all Rhode Island communities. Over fourteen percent of the City's families and unrelated individuals had an income below the Federal poverty level compared with ten percent for the State in 1970. It may have been conceivable to think that the reassignment would ease the housing burden for those of low and moderate income but Newport had completed a large public housing building program that resulted in 1,000 units for the elderly and families of low and moderate income.<sup>18</sup>

All of these factors lead up to the recently implemented decisions concerning the encouragement and financial support of the tourism industry in Newport. Newport has a long history of tourism, dating back to the Colonial period. By 1985, decision makers on the State and local level decided that capitalizing on Newport's past would be the direction Newport and Aquidneck Island's economy would be directed to.

Aquidneck Island has a wealth of activities and history that has been very successfully capitalized upon. The Mansions of the early Nineteenth Century, the America's Cup Race, the Bermuda Race and Newport's dozens of Colonial homes and Victorian homes were the major components of the drawing card. Aquidneck Island's own natural beauty was also part of the complete picture that local officials were able to use in their tourism plan.

Foremost in drawing National attention to Newport after the 1973 reassignment was the establishment of the Newport

Restoration Foundation by Doris Duke, whose goal it was to save and rehabilitate Colonial homes that had been forgotten and had fallen into disrepair. The Foundation has rehabilitated well over 300 such Colonial homes and helped spark the continuing interest in Historic Preservation. In 1981, with the enactment of the Hotel tax, the City of Newport established the Tourism and Convention Authority whose mandate was to promote and encourage tourist activity in Newport and on Aquidneck Island. The Chamber of Commerce recorded a record number of tourist visits in 1983, with over two million people visiting Newport during the months of June, July and August.

#### Housing Trends - 1983

On Aquidneck Island there currently are 27,740 year-round housing units.<sup>19</sup> It has been estimated that ninety-four percent of these units are occupied forty-two percent owner type and fifty-eight percent renter type, with rental units estimated at forty-two percent of the total housing available. The majority of the rental units are located in multi-family structures in Newport with rental units in Middletown and Portsmouth most often being single-family homes.<sup>20</sup>

The 1976 Housing Assistance Plan (HAP), indicated that there may exist a problem with housing for larger families,<sup>21</sup> especially in the low and moderate income groups. While over one-half of the low income large renter families are living in public housing, those families who live outside this program face the same problems as other low and moderate income households of inflation and the high cost of utilities but in a more exaggerated sense. These large families must rent

larger more expensive apartments or suffer overcrowding to save rent money. It has been estimated by the 1976 HAP that twenty percent of the large families pay over twenty-five percent of their income for housing or live in substandard housing or both.<sup>22</sup>

The rental trends discussed above are also impacted by the seasonal tourist population that is active from June to early September on Aquidneck Island. Full-time Island residents are often at a disadvantage in the rental market because of the way that the rental year may be split. Many landlords often offered their property for nine months from September to May and then from June to August at an increased rate. This situation often works against Aquidneck Island residents who are searching for a stable rental rate and time period. The short term rental market, while not always conducive for full-time residents, is often advantageous for the Navy schools that run in three to six months intervals, thus making it easier for landlords to rent strictly on a short-term basis.

#### Condominium Conversions

In 1983 it seems apparent that the housing market is undergoing rapid and far-reaching changes that are directly impacting on the rental market. Approximately fifty former apartments were recorded as being converted from former apartments and 385 new condominiums were constructed during the 1979 - 1980 period.<sup>23</sup> These 1981 figures indicate that some new condominium construction was bought as second homes and of the converted apartments up to sixty percent were



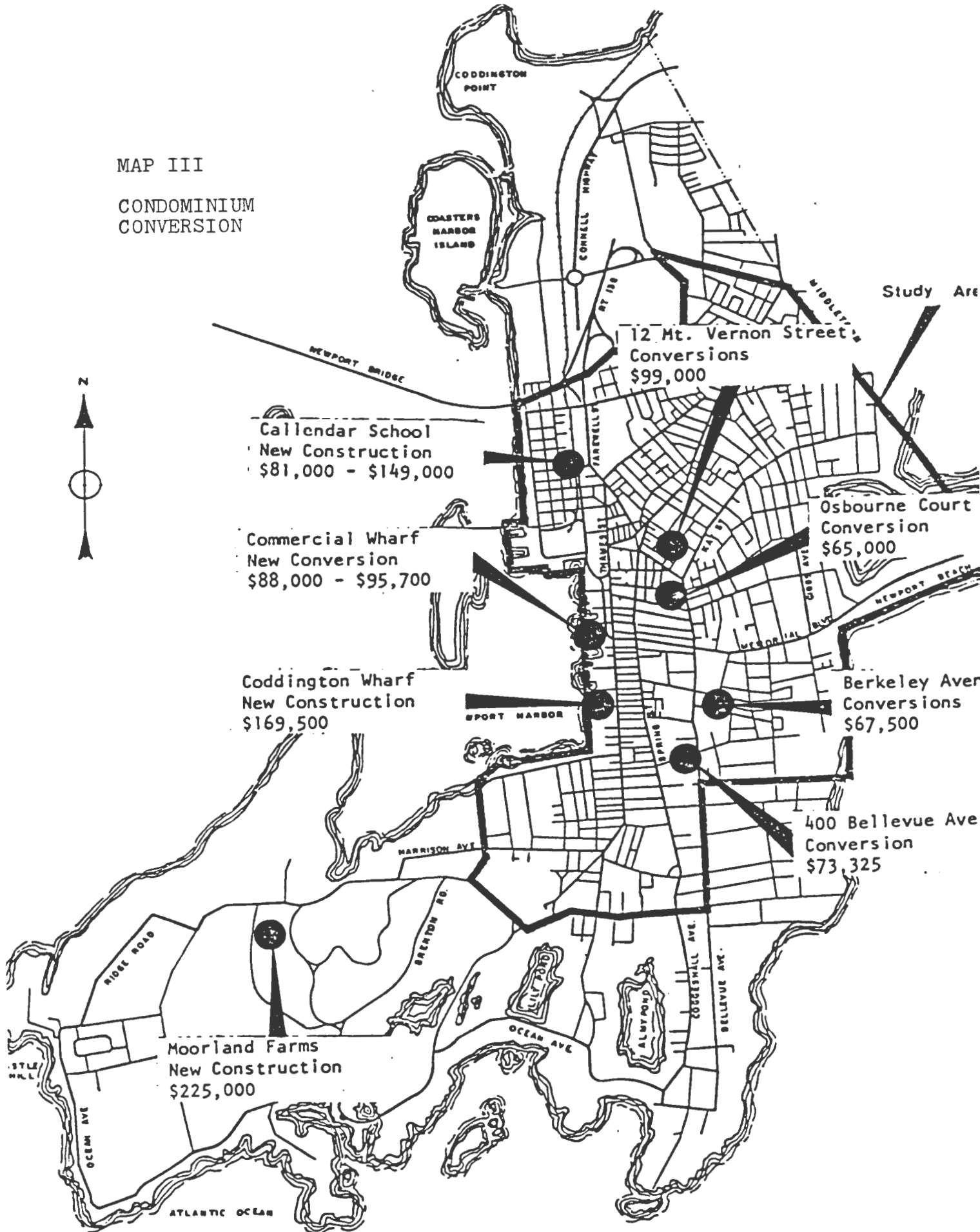
bought by local residents; however, 1983 figures seem to reflect different matters. While the luxury condominium market has appeared to prosper, conversions of middle income apartments has been on the rise. Apartments that previously rented at \$325 to \$400 per month were converted to condominiums commanding rents of up to \$900 per month during the summer season.

The Newport housing market is unique not only because of its historical character, but also because of its place as a tourism and recreation spot. On Aquidneck Island and Newport especially, the vast number of architecturally significant structures and the natural resources and beauty help to command the number of high price homes in the area. (See Map III - Condominium Conversion) Overall, Aquidneck Island has become one of the highest priced real estate markets in Rhode Island. An average rent in Newport, which has approximately 7,000 rental units, is \$400 plus utilities and the average single family home (excluding condominiums) is valued at \$74,000.

By 1983, approximately 500 condominiums had been established with the majority of these being in the category of \$90,000 and higher. While these prices exclude the average Aquidneck Islander from buying a unit, it does seem to indicate who is buying. The Historic nature of many of these converted buildings are acting in some cases as second homes and investment shelters as a consequence of the Historic Tax Reform Act of 1964. This may help the tax roles, but it has caused a major displacement problem for families and

MAP III

CONDOMINIUM  
CONVERSION



Source: Planning Department, City of Newport, RI

individuals in the low and moderate income categories.

Newport does have a large public housing system, but the seasonal influx of a College population from Salve Regina College and an increasing tourist population is in many cases outbidding local residents whose incomes fall in the low to moderate guidelines set by the Department of Housing and Urban Development (HUD). A Section Eight program is in place for area residents but the program guidelines are not competitive in the Newport housing market. (For example, a two bedroom apartment in Newport is priced at \$400 plus utilities but the Section Eight participant has only a total of \$325.00 to compete with including utilities.)

Recent local newspaper articles have brought much attention to this problem, as many local residents appear to be getting priced out of the Aquidneck Island rental market. Currently, the City's vacancy rate for apartments appears to be approximately five percent a year which does seem to justify the market prices set. Single-family homes and condominiums are expected to appreciate at about ten percent a year, while two family homes and apartment buildings appear to appreciate at up to fifteen percent a year.<sup>24</sup>

### Summary

The long association of Aquidneck Island with the U.S. Navy has been at times extremely prosperous, but recently has been cloaked in a great deal of controversy.

When Aquidneck Island decided to rebuild its economy through tourism, most residents did not believe that they would ever see the Navy back in its former grandeur. The Naval

Education and Training Center's (NETC) current mandate, established in 1973, under the Shore Establishment Realignment, consolidated five previously separate commands - Naval Base, Naval Station, Naval Officer Training Center, Public Works Center and the Supply Center Annex - into one operation. NETC also operates seven different schools and is the home of the Naval Underwater Systems Center (NUSC), which has brought a small, but prosperous high technology industry to the Island. Research and development by NUSC has brought such companies as Raytheon, Inc. and IBM to Aquidneck Island to participate in research and development work for system warfare.<sup>25</sup>

NUSC and NETC together employ approximately 3,700 civilians in various job capacities. At the moment, the present level of activity at NETC seems secure as well as the eleven ships stationed at Newport. There appears to be a question in the minds of local citizens of whether an expanded Navy will be advantageous for Newport in light of the current economic situation. Many feel that they are secure with the Navy presence as it is and with the industry it has helped to develop and many are uncertain as to whether an expanded Navy presence will be the positive force, that some have depicted.

The housing problem is one of the most often mentioned concerns when relocation of frigates to Aquidneck Island is brought up and citizens are concerned with the possible effects this decision will have on land use, transportation and the natural environment as they interact with the rental housing shortage. Low and moderate income families are especially

concerned with an influx of new citizens who will most likely be able to out compete the low and moderate income families for the rental property.

The use of a social indication model built for this problem set will be tested to see if the various indicators mentioned in this historical summary can be analyzed seperately and interdependently to ascertain potential policy direction and alternatives. The use of current data and comparison of previous decisions and data used will also be included as an evaluation mechanism for this model.

CHAPTER II  
SOCIAL INDICATOR MODEL AND METHODOLOGY

Introduction

This chapter examines the social indication methodology and the model constructed for this study question. The conceptual framework of the model will be analyzed in terms of data arrangement and data choice. The model developed will be analyzed by indicator type; and its interaction with model variables will also be examined.

Theoretical Framework

The theoretical framework for this problem was selected for its ability to measure and assess change over time in relation to policy decisions that may have initiated the particular change action. The social indicator model can be characterized by three factors:

1. A social indicator is a statistic of normative measure that measures change through time.
2. It is a phenomenon whose components are disagregatable and interdependent and facilititates a comprehensive view of a social condition.
3. Social indicators are goal related and theory ground.

Social indicator analysis was chosen as the method because it allows the researcher to view past and present policy decisions in an agregate and disagregated sense along with the other indicators to which they are reacting to and influencing over time.

## Social Indicator Methodology

The social indicator methodology used in developing the model for this study question is based on the Land-Spillerman model. This methodology is based on ordering and categorizing normative and substantive indications while interpreting their interrelationship to one another as they interact.

## Study Question Model

In the model built for this study question, the interdependence of the indicators plays a key role as does that of policy instrument indicators. This particular methodology measures social change over time, is disagregable, goal related and theory grounded. In this instance the model will be tested by ordering and predicting the social processes that have been chosen for testing.<sup>26</sup>

The model itself is broken down into five components that have been classified by type:

1. Policy Instrument Indicators - directly manipulated by social policy and its decision-making process.
2. Non-Manipulable Indicators - general measures not manipulable by policy. These indicators function as the basis for development of general profiles which monitor general trends and social conditions over time.
3. Analytic Indicators - measures of underlying relationships which affect the output (descriptive and side effect indicators). Their purpose is to integrate indicators within the social system.
4. Output Descriptive Indicators - measures of the end out-products of the social process under analysis. They are direct social system measurements, which can be a response to analytic indicators.

5. Side Effect Indicators - measures output of the social system model which may not be of primary concern but provide indirect information in certain components of interest in this study question.<sup>27</sup> (See Figure 1)

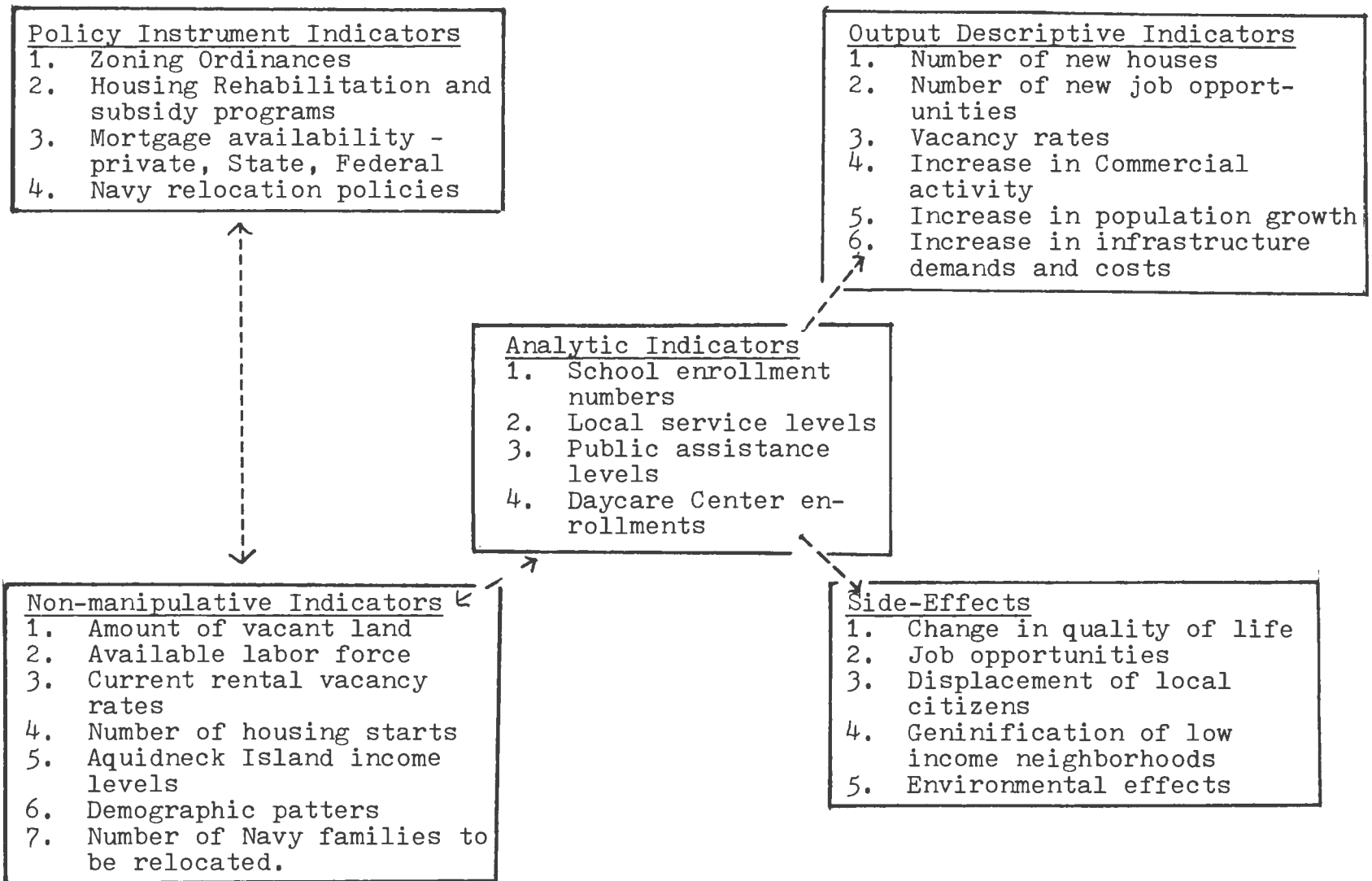
The above explanation of the social indicator model describes the five indicator categories, while Figure 1 illustrates their relationship in a visual sense. The arrows in the diagram show how each of the indicator types influence and react with each other. The analytic indicators are in a central position, integrating input and output indicators and especially in this model reacting to the various policy indicators. Side effect indicators are the indirect result of the input and output indicators and must be carefully analyzed because of their sometimes unanticipated consequences.

In identifying indicators for this model, data reliabilities and availability were considered. Also considered was what indicators would adequately test for model reliability and acceptability. Tables III to XII list by type indicator chosen, as well as providing the purpose that each indicator has in the model system.

The policy indicators seem to have a unique controlling influence on the model because of the very political nature of the problem, as illustrated by the economic and social policy history on Aquidneck Island described earlier. Governmental factors such as zoning ordinances, housing rehabilitation and housing subsidies will be among the most significant of the policy instrument indicators. The availability of mortgage money through private investment and State and Federal sources, as well as current interest rates will



Figure 1



Source: Kenneth Land, Social Indicator Models: An Overview.  
Social Indicator Models, edited by Land Spillerman,  
Russell Sage Foundation, NY.

be a determinate in housing choices for the community and potentially for the new Naval population. The Navy relocation policy is another indicator of significance that will be a key measure when mixed with other manipulative and non-manipulative factors while analyzing the Island rental market. The local policies when combined with the U.S. Navy relocation and housing policies may be contradictory because of what appears to be a slow and limited growth policy, especially in Middletown and Portsmouth in the area of housing development.

Non-manipulative indicators will also be an important part of the analysis. Such factors as the amount of vacant land and the available labor force will be integral when examining new construction or rehabilitation possibilities. Demographic trends may also be an indicator of potential housing demand. Vacancy rates and trends in rental housing will also be a telling factor when analyzed in conjunction with policy factors. Current housing starts and trends may contribute to the overall measure when viewed along with vacant land, zoning ordinances and growth policies.

The analytic indicators in this model are made up of a combination of the effects of the Policy Instrument and non-manipulative indicators. These indicators in the analytic set are best able to express change, if any, over time because they can be measured in very substantive ways. (See Table III - XII).

The analytic indicators are all service measures from each community that may reflect changes in the population, needs of the population and relative affluence of the community.

Table III\*  
Selected Indicators by Type 1970-1980

Policy Instrument Indicators

1. Zoning ordinances of Newport, Middletown and Portsmouth.
2. State and Federal Housing Rehabilitation and Subsidy programs.
3. Mortgage availability from private institutions and Federal and State programs.
4. Navy relocation policies and strategies.

\*This table format was originally compiled by Dr. Marcia Marker Feld and Ms. Joanne Casulo. They were first used in 'US Policy in Indian Affairs', Joanne Casulo, URI, 1932.

Table IV

Purpose of Selection

Policy Indicator	Purpose
1. Zoning Ordinances of Newport, Middletown and Portsmouth.	Measure change in local attitudes toward growth over time.
2. State and Federal Housing Rehabilitation and subsidy housing.	Measure change in Federal and State support systems for housing over time.
3. Mortgage availability from private institutions and Federal and State programs.	Measure change in Federal and State support systems for housing over time.
4. Navy relocation policies and strategies.	Measure and analyze change in Navy housing policies.

Table V

Selected Indicators by Type 1970-1980

Non-Manipulative Indicators

1. Amount of vacant, buildable land on Aquidneck Island.
2. Available labor force and characteristics.
3. Current rental vacancy rates.
4. Number of housing starts.
5. Aquidneck Island income levels.
6. Demographic patterns.
7. Number of Navy families located on Aquidneck Island.

Table VI

Non-Manipulative	Purpose
<ol style="list-style-type: none"> <li>1. Amount of vacant, buildable land on Aquidneck Island</li> <li>2. Available labor force and characteristics</li> <li>3. Current rental vacancy rates.</li> <li>4. Number of housing starts.</li> <li>5. Income levels.</li> <li>6. Demographic patterns.</li> <li>7. Number of Navy families located on Aquidneck Island.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine constraints upon possible new building.</li> <li>2. Determine amount of available workers and skills available in the work force.</li> <li>3. Determine market characteristics and constraints.</li> <li>4. Determine new housing market activity.</li> <li>5. Determine income levels by community, particular attention to be paid to low-moderate income levels.</li> <li>6. Determine social make-up of Aquidneck Island using age cohorts and family composition to help determine future housing needs.</li> <li>7. Determine the amount of families to be located on Aquidneck Island over time.</li> </ol>

Table VII

Analytic Indicators 1970-1980

1. School enrollment numbers.
2. Local service levels.
3. Public assistance levels in social welfare service.
4. Day care center enrollments.

Table VIII

Analytic Indicators	Purpose
<ol style="list-style-type: none"> <li>1. School enrollment</li> <li>2. Local service levels</li> <li>3. Public assistance levels in social welfare service</li> <li>4. Day care center enrollment numbers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine increase or decrease in school-age population and any school closures.</li> <li>2. Determine any change in service levels, analyzing hiring, lay-off levels.</li> <li>3. Determine any change in social welfare assistance levels.</li> <li>4. Determine any change in day care center enrollment numbers.</li> </ol>



Table IX

Selected Indicators 1970-1980

Output Descriptive

1. Number of new houses.
2. Number of new job opportunities.
3. Vacancy rates.
4. Increase in commercial activity.
5. Increase in population growth.
6. Increase in infrastructure demands and cost.

Table X

Output Descriptive	Purpose
<ol style="list-style-type: none"> <li>1. Number of new homes.</li> <li>2. Number of new job opportunities</li> <li>3. Vacancy rates.</li> <li>4. Increase in commercial activity.</li> <li>5. Increase in population growth.</li> <li>6. Infrastructure demands and costs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine change in new home construction patterns.</li> <li>2. Measure and determine the number of new job opportunities that have been created or dissolved over time.</li> <li>3. Determine any changes in vacancy rates over time and analyze.</li> <li>4. Analyze what effects policy indicators have had on commercial activity.</li> <li>5. Analyze what effects policy indicators have had on population growth.</li> <li>6. Determine what type of impact has been placed on existing infrastructure.</li> </ol>

Table XI

Selected Indicators 1970-1980

Side Effects

1. Change in quality of life.
2. Job opportunities
3. Displacement of local citizens.
4. Gentrification on Aquidneck Island low income neighborhoods.
5. Environmental effects.

Table XII

Side Effects	Purpose
<ol style="list-style-type: none"> <li>1. Change in quality of life</li> <li>2. Job opportunities</li> <li>3. Displacement of local citizens.</li> <li>4. Environmental effect</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine what effect that new Navy population will have on local citizens.</li> <li>2. Determine how the new Navy population will effect the local population.</li> <li>3. Determine if and to what extent displacement may occur.</li> <li>4. Determine what effects that the new Navy population will have on the natural environment.</li> </ol>

School enrollments and Day Care Centers will reflect over time the pre-1973 effect of the Navy on the schools, as well as determining if the vacuum left by the reassignment was filled. Day Care Center enrollment and public assistance figures will not only mirror the social change from 1970 to 1980, but will also show how competitive the local citizens are in a booming housing market.

When policy indicators and non-manipulative indicators are analyzed together they will produce output descriptive indicators and side effects which may have been anticipated or unanticipated. These indicators may be measured in aggregate or disaggregate to determine specific effects. An example of this would be to measure or compare the effect of zoning ordinances and building programs (policy indicators) and the available labor force and natural increase (non-manipulative indicators) in aggregate and in disaggregate form in differing combinations. There are many combinations that can be formed and their relationships measured in relation to the problem of Naval impact on the housing market. The analytic indicators these factors will produce (school enrollment, local service levels) will be translated into output descriptive indicators and side effects, all of which will play an important part in the overall picture.

The output descriptive indicators viewed as the output of the analytic indicators generally reflect demographic and social change. When certain policy indicators and non-manipulative indicators were combined and reviewed in the context of this problem, six particular output descriptive indicators

emerged. The first, and probably most important of the output descriptive indicators was the prospect of new houses. How many and where they may be placed, as well as environmental side effects will be an important output for public and private interests to consider. The effect of new housing will impact on other output indicators such as infrastructure demands and housing vacancy rates.

The effect on vacancy rates will be a significant factor, which may help to produce some side effects as well. If vacancy rates are pushed extremely low, there will be market pressure to build more; and conversely if people decide to leave Aquidneck Island because of Naval presence vacancy rates may stay the same or possibly be pushed slightly higher.

The effect on commercial activity by manipulative and non-manipulative variables may be another output that will contribute many side effects. Commercial activity here is viewed as service-oriented and it is expected that with the event of increased Naval presence, that service businesses catering exclusively to the Navy (military tailors, uniform shops, etc.) will open and reopen after closing with the Naval reassignment in 1973. Other increases in the commercial sector will correspondingly occur as with any population increase of significant size. Changes in commercial activity will also have an effect on the employment rate.

Job opportunities, another output descriptive indicator will also change in this context. Job opportunities may open up in certain fields, especially service, as new businesses

open and others expand. Construction, restaurant help, clerical and some production work may well increase. However, the addition of Navy wives and children to the labor pool may provide significant additional competition for local citizens.

Infrastructures demands and changes in service costs are two interrelated output indicators that are put together because of their dependence on each other. Increased infrastructure demands may possibly cause concern to the three local governments. Newport has complete water and sewage lines in place, but except for areas that have recently been rehabilitated with Community Development money, the systems are over burdened, antiquated and badly in need of repair and replacement. Middletown has some water and sewage lines in place (from previous Navy settlement) but like Portsmouth, relies heavily on well-water and septic sewage systems.

With increased Naval presence and with possible increased building and commercial activity, Aquidneck Island will have to take a hard look at their infrastructures and make some tough local political decisions on the question of whether to build or to rebuild. If rebuilding or building is the route chosen, some form of payment such as user fees and new assessments will have to be levied to cover construction costs. At this point it looks as if there will be very little, if any federal impact funds to cover these costs.

The side effects intended or unintended are a critical part of the model. The potential for change in the quality

of life, whether positive or negative could be a separate study by itself, but all of the factors discussed here contribute to this variable. The possibility of displacement of local citizens, minorities and the poor are important considerations in light of the current tight housing market and lack of subsidized housing on Aquidneck Island.

The gentrification of low-income and minority neighborhoods is another side effect that cannot be ignored but will probably not be considered in the policy making stages. Gentrification has long been a problem, particularly in Newport, where housing supply could not meet market demands for housing. Three traditionally lower income and minority neighborhoods have and are now being transformed. One neighborhood has been destroyed through redevelopment and is now known as Historic Hill, the heart of the tourism-yachting activity. The Broadway-West Broadway neighborhood is currently undergoing extensive commercial and residential rehabilitation and is rapidly becoming a gentrified area. The Fifth Ward neighborhood, largely white, is currently undergoing rehabilitation and is also feeling some gentrification effects.

Gentrification of neighborhoods has lead to not only longer lists for the City Housing Authority, but inflated rental prices as demand increases for housing. A Section Eight Program administered by the State of Rhode Island is now in place on Aquidneck Island, with the Church Community Corporation (non-profit housing group) and the Housing Hotline actively supporting and encouraging the program with some success.

The environmental side effects are a consequence that



may receive the most most attention because of increased focus on problems of this nature. The decision of where to build, the effect of new septic sewers and changes in land use may have a significant impact on the Island's ecological systems. Continuing water shortages and the fact that some small developments have been located on water-shed areas are current problems that should be watched and avoided in the future.

### Political Context

While defining terms in this chapter, it has also been the intent to show the interrelationships among all the variables. The relationships among the indicators are at the same time interdependent and complex. Policy influences look as if they will be the controlling influences on the other variables simply by virtue of the problem. This seems to be substantiated by an early 1982 statement release by the Navy that they may not in fact be relocating to Aquidneck Island because of local resistance to the relocation plan. (They have since reconsidered, see Chapter One.)

### Data Base Characteristics

In determining what data would be chosen to measure the impact of the frigate reassignment to Aquidneck Island, consideration was given to data availability, potential reliability and most particularly the time frame for measuring events. The years 1970 and 1980 were chosen as benchmarks, not only for data collection convenience, but also because it represents Aquidneck Island in 1970 when the Navy represented a significance presence here and in 1980 when tourism

and the service industries became a powerful force.

The data sources that have been collected are many and varied and have been organized in the following Tables XIII - XVII by indicator. The Tables will be evaluating the policy direction - positive or negative - in terms of accepting a new Navy population, years available and the source. In certain instances, where the data is available, 1975 may be used as a midpoint to show significant turning points in policy or such indicators as employment or population numbers. Data base considerations are further discussed in Appendix B.

The designation of positive or negative that has assigned to each indicator type overall, will also be placed on each of the individual indicators in the set. A rating of positive is construed as meaning that the indicator has shown that an increased Navy population will not effect the housing market greatly, and that the indicator itself will be able to accomodate growth in the housing market. A negative value assignment shows a poor correlation with increased growth in the housing market and that the indicator may not be receptive to an increased Navy population.

The overall information system characteristics are further explained in this chapter in Tables XIII - XVII, and further analyzed in Chapter Three and in Table XIX - XXII.

Table XIII#

POLICY INSTRUMENT INDICATORS	Policy Direction		Source				Availability	
	+	-	US Census	State	Local	Private	1970	1980
1. Zoning Ordinance		x			x		x	x
2. Housing rehabilitation and subsidy programs		x		x	x		x	x
3. Mortgage availability								
Private Institutions	x					x	x*	x*
State Programs		x		x			x**	x**
Federal Programs				x			x	x
4. Navy relocation policies		x	x				x	x

\* - 1975 data  
\*\* - 1980 and 1982 data  
# - Source: Original format designed by Dr. Marcia Feld and Ms. Joanne Casulo. See Table III.

Table XIV

NON-MANIPULATIVE INDICATORS	Policy Direction		Source				Availability	
	+	-	US Census	State	Local	Private	1970	1980
1. Amount of vacant land		x		x	x		x	x
2. Available labor force		x	x				x	x
3. Current rental rates		x				x	-	x
4. Number of housing starts		x			x		*	x
5. Income levels		x	x				x	x
6. Demographic patterns		x	x				x	x
7. Number of Navy families located on Aquidneck Island		x				x	N/A	x
* - 1972 data								

TABLE IV

ANALYTIC INDICATORS	Policy Direction		Source				Availability	
	+	-	US Census	State	Local	Private	1970	1980
1. School enrollment numbers	x				x		x	x
2. Local service levels		x			x		x	x
3. Public assistance levels		x	x	x			x	x
4. Day Care Center enrollment		x	x	x			x	x

Table XVI

OUTPUT DESCRIPTIVE INDICATORS	Policy Direction		Source				Avail-ability	
		-	US Census	State	Local	Private	1970	1980
1. Number of new houses	x					x	x	x
2. Number of new job opportunities	x		x				x	x
3. Vacancy rates		x				x	x	x
4. Increase in commercial activity (Revenues)	x	x	x	x		x	x	x
5. Increase in population growth		x	x			x	x	x
6. Increase in infrastructure costs.		x			x	x	x	x

Table XVII

SIDE EFFECT INDICATORS	Policy Direction		Source				Availability	
	+	-	US Census	State	Local	Private	1970	1980
1. Change in quality of life	x		x			x	-	x
2. Job opportunities	x		x			x	x	x
3. Displacement of local citizens		x			x	x	-	x
4. Gentrification on Aquidneck Island		x			x		-	x
5. Environmental effects		x		x		x	-	x

## CHAPTER III

### Analysis of Indicators

#### Introduction

In this chapter the data chosen for this study is analyzed with primary reference to the measurement of changes in the Aquidneck Island housing market and the overall change in Aquidneck Island quality of life since 1970. This chapter examines each indicator and its components individually and follows with a general summary that discusses interaction between variables. Findings of the research and a critique of the method are discussed in Chapter IV.

#### Policy Instrument Indicators

Overall, the policy instrument indicators chosen and the supporting data collected (See Table XIX) show a negative policy orientation towards the Naval relocation of four frigates to Aquidneck Island. While there seems to be positive correlation with private housing financing, the public sector constraints show an overwhelming negative value. The Navy relocation policy itself, while showing potential positive values for economic reasons and also points out the negative effect this will have on the Island housing market.

The Zoning Ordinances of all three Aquidneck Island communities deals with growth in a traditional manner. The City of Newport's ordinance, because of the urban character of the land use, is concerned with not only traditional growth controls, but particularly because of recent and rapid growth, with the commercial waterfront and condominiums. Both



Table XVIII

Policy Instrument Indicators	1970	1976	1980	Percent Change
1. Zoning ordinances	N/A	N/A	N/A	
2. Housing subsidy				
a. Section 101	-	-	245	+100%
b. Section 8	207	-	369	+ 56%
c. Section 23	21	-	21	-
d. Public Housing	1086	-	1134	+ 5%
e. CD Rehabilitation - Loan and Grant Program*	-	59	54	- 8%
3. Mortgage availability/granted				
a. Private	1**	-	19	
b. RIHMFC	-	-	719#	
c. Federal Programs(VA,FHA)	-	-	3	
4. Navy relocation policies	N/A		N/A	
<p>N/A = not applicable in numbers  * = Newport only in project  ** = 1975 stastics, these figures were only available from one bank.  # = 1983</p>				

the Middletown and Portsmouth ordinances have been constructed in the same manner but have not been as specific in placing limits on new growth. The Zoning Ordinance did not provide any indication of local attitudes towards growth, so to acquire a sense of how the towns felt a brief survey was administered to a local zoning official in each community.

All three officials seemed generally to be in agreement on a number of points - that the current rate of growth is adequate, and especially in Newport, possibly proceeding a bit too fast; that local citizens seem satisfied with the present rate of growth and may in some cases wish to see it slowed; that the Navy reassignment will probably have a crowding effect on the Island housing market, especially in the summer; and that the Zoning Ordinance is overall an adequate and currently the only device used to handle growth. The type of growth that these officials seemed to have reservations about is residential rather than commercial or industrial. While this particular indicator points to a potential growth attitudes in some sections a negative value has been assigned because the pressure increased Navy presence would have on the Aquidneck Island housing market. (See Appendix C.) Overall, it appears that while new residential growth may be positively viewed by local authorities, there appears to be some reluctance to see it on a large scale.

The mortgage availability indicator shows a distinct increase in the amount of private mortgages granted but data could only be obtained from one of the area banks. The

official who was contacted could not explain why they had only one recorded conventional mortgage in 1970 and granted no Veteran's Administration and Federal Housing Authority that year either. The 1980 figures show 19 conventional mortgages and two VA-FHA which does indicate the willingness of this particular institution to grant mortgages on Aquidneck Island. The bank official spoken to at this bank felt the subsequent years since 1980 would show substantial increases in mortgages corresponding with recent economic gains.

The Rhode Island Housing and Mortgage Finance Corporation (RIHMFC) another mortgages source, has had an interesting effect on Aquidneck Island housing market as well as the larger Rhode Island area. RIHMFC was established in 1973 to provide building funds for construction and rehabilitation of low and moderate income multifamily structures as well as providing local lenders in 1981 with funding for lower interest mortgages geared toward low-moderate income families and individuals. Noteable among the restrictions on the loans is the income ceiling of \$17,500 for purchasers and the stipulation against having owned a home in the past three years. The program has steadily increased from 1981 with 719 mortgages granted in 1983. The program has effectively allowed the low-moderate income buyer access to the housing market at reasonable interest rates. Under this program while Aquidneck Island buyers are eligible, so are potential Navy buyers. This added competition in the market may prove to exclude Aquidneck Islanders from the local housing markets for a variety of reasons, job security and guaranteed pay raises included.

While this financing device has opened up the market for some local citizens, the added competition from Navy residents may negate this, but RIHMFC has provided a new opportunity for local citizens to buy housing.

All three of these mortgage indicators (private, RIHFMC and Federal) illustrates that mortgage opportunities are available to residents of Aquidneck Island in all income classifications. The indicator was viewed as a positive indicator because of the increased opportunity it represented for Island residents to own this freeing up some space in the congested rental market. The Veteran's Administration loans especially, may increase competition with local citizens, but it seems that the RIHMFC system may give locals the opportunity needed for those interested in buying.

The Naval Education Training Center Environmental statement has discussed the Navy relocation policies in a very explicit manner. The Aquidneck Island site was in competition with several other localities for the relocation of the four frigates and was awarded the competition because of the already existing facilities and the geographical location of the site. The Navy analysis took into consideration environmental, social, transportation and housing areas. The housing analysis looked closely at the current Aquidneck Island rental market situation as well as existing Navy housing. The Navy's overall conclusion was that the influx of new Navy personnel would push vacancy rates lower as well as pushing rental prices up, forcing Island citizens of low and moderate income out of the market.

As discussed in Chapter One, current Navy housing does not have the capacity to absorb the expected new population, while the existing Aquidneck Island housing market appears to have similar difficulties. When the surrounding housing markets are included in the analysis, (those whose travel time is up to 60 minutes from the NETC) the pressure is eased somewhat, but it has been assumed that the local housing market will reach capacity immediately upon the relocation influx. The Navy Relocation Policy indicator has been given a negative value, because of the negative impacts these policies are most likely to have on the Aquidneck Island housing market.

#### Non-Manipulative Indicators

These indicators supply information on Aquidneck Island's demographic, social and land use pattern. These will help to establish the context for present life style and housing market conditions that existed in 1980 and which have been traced since 1970. Through this data set, it was hoped that a picture of life with the Navy in 1970 and life without the large Navy presence in 1980 will become clear, it will also illustrate how the Reassignment of 1973 may have changed Aquidneck Island life (See Tables XVIII and XIX a and b).

Overall, this non-manipulative indicator shows a negative correlation in relation to expanded Navy growth. The vacant land/open space component is an example of this. Aquidneck Island since 1970, has lost an appreciable amount of open space that has been converted primarily to residential units, whether they be single family, multi-family or condominiums.

Table XIX(a)

Non-Manipulative Indicators	Total Square Miles	Total # of Units	1970	Total # of Units	1980	Percent Change
1. Vacant land/ open space						
a. Newport	7.7	-	47%	-	33%	-14%
b. Middletown	12.9	-	64%	-	59%	-13%
c. Portsmouth	23.3	-	72%	-	64%	- 8%
2. Available labor force						
a. Newport	-		14,915	-	11,277	- 7%
* Newport East	-		4,142	-	4,801	8.6%
b. Middletown	-		4,872	-	6,106	7.9%
c. Portsmouth	-		19,418	-	6,041	- 3%
3. Rental rates - <u>Median by Year</u>						
a. Newport	-	11,087	\$ 98	11,809	\$ 247	+61%
Newport East	-	3,341	\$ 137	4,271	\$ 296	+54%
b. Middletown	-	4,877	\$ 133	5,228	\$ 278	+55%
c. Portsmouth	-	3,953	\$ 129	6,432	\$ 299	+57%
5. Income levels <u>Median Income**</u>						
a. Newport	-	-	8,592	-	14,200	+41%
Newport East	-	-	10,731	-	17,810	+40%
b. Middletown	-	-	9,648	-	17,452	+45%
c. Portsmouth	-	-	9,435	-	20,452	+54%
7. Number of Navy personnel on Aquidneck Is- land						
a. Single	-	-	640	-	180	+72%
b. Married	-	-	2,385	-	1,378	-43%
c. Students	-	-	900	-	2,572	+65%
* - Newport East is a Census designated place located in Middletown.						
** - Indicators number 4 and 6 are in following page						

Table XIX(b)

Non-Manipulative Indicators	Total Population 1970	Total Minority 1970	Number/ House- hold 1970	1970 65+ Percent	Total Population 1980	Total Minority 1980	Number/ House- hold 1980	1980 65+ Percent
6. Demographic levels								
a. Newport	34,562	3,245	2.96	9.8%	29,259	2,829	2.5	5.2%
b. Middletown	29,621	2,093	3.41	3.3%	17,216	908	2.84	9.6%
c. Portsmouth	12,521	152	3.35	6.1%	14,257	266	2.94	1.8%

Non-Manipulative Indicators	1972	1975	Percent Change '72-75	1980	Percent Change '72-80
4. Number of housing starts in Newport County*	424	155	-63%	168	+8%
* - Numbers only available in County form. Newport County Chamber of Commerce estimates that approximately two-thirds of the housing starts are located on Aquidneck Island.					

Building has continued especially in zones with large lot development which has accounted for the decrease in open space.

The number of housing starts while decreasing dramatically from 1972 to 1975 has once again begun to make slight gains. This indicator, in particular, has been effected by national economic trends, and unfortunately does not reflect the number of permits given for condominium conversion, multi-family conversion or rehabilitation. Although no comprehensive records were available from any of the three communities, building inspectors spoken to felt that the number of conversion permits were responsible for the significant rise in number of housing units on the Island considering the poor record in new house starts. When viewed together these indicators were contributing factors to the overall negative value assigned to the non-manipulative indicators. It appears that while the housing market suffered an initial loss in housing starts, the home building industry on Aquidneck Island is springing back, with slight increases in housing starts and increases in conversions and rehabilitation. These factors appear to be directly impacting in decreasing the vacant land/open space which makes it another strong contributing negative factor.

The available labor force on Aquidneck Island has shown a slight increase over the ten year period, that corresponds with the Island's rebound in population. The twenty-one percent loss in population overall during the ten year period reflects a significant gain since 1975, with a twenty-four percent loss between 1970 and 1975. This indicated that the



population that has replaced the Navy appears to have more individuals of working age that also recorded significant gains in income since 1970. Income on the Island has practically doubled over the ten year time period as well as recording a significant drop in minority citizens and the number of elderly in the communities. These factors present an interesting picture of the demographic change that has occurred over the last ten years. The increased labor force that is earning an appreciable amount more in income may well be influencing the number of minority and elderly citizens who are able to maintain homes on Aquidneck Island.

Correspondingly, rental rates and the number of rental units have increased. The current trend in tourism and Aquidneck Island's projection of its resort image has encouraged a growing summer population, that in many instances stays on through winter months and ultimately establishes residency. A growing Salve Regina College population is another factor that has also helped to contribute to the large number of apartments and high rentals in existence in 1980. The 1970 median rental of \$124.25 is in sharp contrast to the 1980 median rental of \$280.00.

The number of Navy personnel was the final indicator category considered. Only those Navy personnel living on Aquidneck Island were considered in this count for both 1970 and 1980. While the loss of personnel was substantial, the Navy student population increased by over 65 percent, reflecting the current NETC mandate. All students are housed

at NETC and as such do not impact on the housing market. As discussed in Chapter One, Navy housing units on Aquidneck Island are currently at capacity levels, so that while the present Navy population is somewhat satisfied with the housing situation (there is a waiting list for Navy housing), there does not appear to be any accommodations for new arrivals. It also appears that the population gap left by the Navy has started to fill in as evidenced by the data presented here. Summer rentals and seasonal tourist activity may also be contributing further to this, as it is estimated that Newport's population doubles in the summer months.

All of these indicators show a composite picture of the changes that have taken place on Aquidneck Island during the ten years studied. The loss of minority citizens, gain in the elderly population and the increase in rents, income and the available labor force have all indicated a negative policy direction. The loss of Naval personnel from Aquidneck Island does not appear to have left a substantial gap in the 1980 housing market, as evidenced by the decrease in vacant land and increase in the number of rental units.

#### Analytic Indicators

The analytic indicators in this model are a combination of the effects of the Policy instrument and non-manipulative indications. The indicators chosen are service measures that will provide information concerning what if any, fiscal stress has been placed on the Island governments, as well as reflecting social change. All measures of service are of local government expenses, rather than State or Federal shares, to

Table XX

Analytic Indicators	1970	1980	Percent Change '70-'80
1. School Enrollment			
a. Newport	5,756	4,615	-18.8%
b. Middletown	4,265	3,228	-25 %
c. Portsmouth	3,186	2,976	- 6.6%
2. Local service levels - waste disposal, Fire and Police			
a. Newport	2,341,453	3,209,414	+63 %
b. Middletown	556,676	1,512,879	+39 %
c. Portsmouth	286,000	1,143,215	+75 %
3. Public assistance			
a. Aquidneck Island govern- ment contribution to residents under the pover- ty line.	104,992	695,700	+85 %
b. Percent residents under the poverty line	11.6	6.7	-42 %
c. Median Aquidneck Island income	9,833	17,391	+44 %
4. Day-Care Center/Nursery School enrollment - Aquidneck Island	621	1,664	+62 %

attempt to gauge any change over time.

School enrollment figures showed a substantial decline in 1980 with Middletown suffering the largest loss by having an approximate twenty-five percent decline in their school population. National demographic trends have no doubt effected Aquidneck Island enrollment levels, but it appears that the Navy reassignment left a large gap that still has not been filled.

This particular indicator can be considered positive when dealing with the study question. While new teachers will have to be hired, it appears that the proposed Abdnor-Pell amendment, which deals with Federal impact aid in the area of education, may help ease the tax burden if the reassignment is ordered. Excessed school buildings throughout the Island could potentially be reopened if necessary. This indicator seems to point a positive policy direction for Naval relocation because of the potential Federal aid proposed and the school facilities still available.

Local service levels analyzed were Police and Fire service and in Newport only waste disposal. (Newport is the only community that pays through the property tax for twice weekly garbage disposal.) The increases in services costs have all gone up dramatically with an average of fifty-nine percent since 1970 for all three communities. This indicator, inflation notwithstanding, has been assigned a negative value because of the increase in service costs, especially in light of the decreased population of the Island.

The Public Assistance levels measured included local

government contributions to welfare needs, the number of citizens eligible for social welfare help and a comparison to the overall median income. The local government contribution to welfare needs has risen on Aquidneck Island eighty-five percent during the ten year period, with the major share of the expenditure contributed from Newport. The increase in this expenditure is in part made of new Federal cutbacks, that have shifted the burden from the Federal Government to the State and locals which once again have been effected by inflation.

The number of residents under the poverty line has taken a dramatic drop from 1970-1980. According to the data gathered, Island-wide, forty-two percent of the population classified as under the poverty line have left the Island or have moved out of the poverty income classification. Sources at the Housing Hot Line and Church Community Corporation (two local service agencies geared toward serving and counseling low-moderate income families) felt that this drop was a reflection of gentrification on the Island and housing market pressures. When this indicator is viewed in conjunction with the median Aquidneck Island income, it is evident that the low-moderate income residents are facing some substantial competition.

The mean Aquidneck Island income has risen from \$9,833 to \$17,391 per year. This is in stark contrast to the established poverty line income figures of \$3,968 for 1970 and \$8,414 for 1980. Without public assistance these citizens have very little power when competing for housing in the open market system.

The Day Care Center/Nursery School enrollments were included to identify change in work force patterns that could effect buying power necessary to compete in the housing market. Significant new numbers of children have been placed in these facilities, following national trends that indicate that many mothers may be rejoining the work force earlier than in previous years. Although this indicator may not impact on the housing market as clearly as some of the others, it does seem to illustrate the social change that has taken place over the last ten years.

The last three indicators discussed all have negative values in the context of this problem (See Table XX). The increases in local service level costs when combined with a lower population seems to indicate financial stress in all communities. While Public Assistance levels have grown in terms of local government contributions, the number of recipients has significantly declined. When these two indicators are combined with the Island median income level it appears that these factors may be indicating that local low-moderate income citizens have become the victims of gentrification and may have been priced out of local housing market. The Day Care Center/Nursery School enrollment levels were another indicator that reflects social change that has taken place on the Island over time.

Overall, the analytic indicator category has to be given a negative value, even though school enrollment would not be negatively affected by the reassignment decision. The overall combined effects of the other three indicators are significant

enough to outweigh school enrollments and support a negative designation.

### Output Descriptive Indicators

The output descriptive indicators, viewed as the output of the analytic indicators, generally reflect demographic and social change brought about by the constraints put in place by the policy instruments and non-manipulative indicators chosen for the problem.

The indicators that were investigated in this category are the number of new homes, number of new job opportunities, population growth, increase in commercial activity and the increase in infrastructure demands. This indicator has been given an overall negative value because of the stress that an immediate population gain will place on the local communities.

The number of new homes built in Newport County in 1980 was substantially lower than the 1970 number. Local housing trends in new construction were effected by National trends in interest rates, material prices and overall demand. This data reflects the number of single family homes only and does not include any other construction. This indicator was given a positive value because of the potential for new housing construction that may have been stifled because of previous hard economic times. It seems reasonable to assume, when viewing trends from 1980 to the present, that new housing construction will continue to increase especially in Middletown and Portsmouth, where vacant land/open space is available. This new housing may help ease some of the impact of a sizable

Table XXI

Output Descriptive	1970	1975	1980	Percent Change '70-80
1. Number of new homes in Newport County	424	N/A	168	-60%
2. Number of new opportunities in selected job occupations for Aquidneck Island				
-Managerial and Professional	6888	-	8033	+15%
-Technical sales and Administrative	1396	-	7957	+83%
-Service industries	3676	-	5497	+43%
-Farming, Forestry, Fishing	234	-	342	+32%
-Precision product, craft, repair	2524	-	3163	+20%
-Operators, fabricators, labors	1406	-	3328	+58%
TOTAL			28320	
3. Vacancy rates of total dwelling units				
- Newport	9.8	-	9.4	
- Middletown	5.7	-	5.2	
- Portsmouth	18.4	-	13.6	
4. Change in revenues returned from State of Rhode Island to local community				
- Newport	111650	-	97240	-8.7
- Middletown	47360	-	42390	-8.9
- Portsmouth	41880	-	43910	+ .9
5. Increase in population growth				
- Aquidneck Island	76704	53100*	60732	-21%
6. Increase in infrastructure - Water, sewer, Public Works, Engineering				
- Newport	1151164	-	2931683	+38%
- Middletown	140568	-	656144	+21%
- Portsmouth	188000	-	522637	+35%
7. Total number of occupied housing units	21870	-	23730	+ 8%
* - R.I. Department of Economic Development estimate				



population influx from the Navy.

Over the last ten years vacancy rates have remained relatively stable. Portsmouth's vacancy rate is the only one to show any substantial change, which was a downward adjustment. This indicator shows that the population that replaced the Navy in 1972 has replaced their presence in the housing market, especially when considering the increases in dwelling units over time. The indicator was given a negative value for a number of reasons, the most compelling is the stability of the vacancy rates over time illustrating how little leeway there appears to be in the rental market. Vacancy rate interaction with the number of dwelling units and population base also illustrates its negative connection.

There has been a positive change in the total number of occupied housing units on Aquidneck Island. Condominium conversions, apartment conversions and new housing starts have all contributed to this. The only community to lose any housing in real numbers was Newport, where paradoxically the greatest number of condominium conversions have taken place. This may be accounted for in some way by the number of Navy housing units that were razed in the Fort Adams area, although this unit loss may have been somewhat mitigated by recent conversions. This indicator has interesting implications especially when viewed with the vacancy rates, and the decrease in population. It appears that the seasonal demand may have created these units and is what keeps them occupied, despite year-round loss in population. These factors together indicate a negative correlation with a new Navy population.

The change in revenues returned from the State of Rhode Island to the Aquidneck Island communities has dropped in the ten year period investigated. Since there has been a great deal of publicity about the economic recovery and the amount of new job opportunities and therefore, this drop was a surprise, particularly since sales tax is a principal component of the revenues gathered. However, changes in the reallocation formula have been made, so that the State itself is retaining more of the funds gathered. The formula, based on the percentage of contributions per locality in relation to the State as a whole, has had changes made in recent years because of growing State needs and deficits. A negative value was assigned to this indicator because of the drop in revenues received from the State and the increases in services and infrastructure that have been documented.

Increases in infrastructure have been substantial but less than service increases for all of the three communities. Infrastructure was designated as the costs assigned for water, sewer, public works and engineering. While Newport is the only community with engineering facilities, it is also completely served by water and sewage lines, while Middletown is approximately seventy-five percent served and Portsmouth relies primarily upon well water and septic systems. These costs also bear inflationary effects the same as did the service indicators. The increase in infrastructure costs, though some increase was expected, were also given a negative value. This indicator seemed also to identify additional fiscal stress in the communities that may be seriously increased when

the Navy reassigns the frigates.

The number of new job opportunities on Aquidneck Island has increased significantly in the selected major occupation categories. The largest increase was in technical sales and administration, followed by operations, fabrications and labors, (which includes construction) and the service industries. It appears that the Navy related businesses in computer programming, research and design which are involved in contracts with the Naval Underwater Systems Center and the tourist industry are primarily responsible for these large gains. While the number of jobs is larger than the Island work force, it must be noted, especially in service, that many of these positions are seasonal and part-time. Many of the people who fill these positions are college age students on the Island for the summer only. A positive value is given to this indicator because of the flexibility that the job market seems to have acquired since 1970. This indicator appears to be capable of possibly absorbing new workers that will be introduced through the Navy reassignment through expansion because of demand for services.

The increase in population, which has also been given a negative value, was devastating in terms of population reduction that has had an effect on many facets of Aquidneck Island life. Virtually every indicator discussed in some way has a relationship to the population change that has been documented. From 1975 to 1980 there appears to have been at least five percent increase in population, that once again, has been attributed to factors mentioned previously such as

tourism and condominium conversions.

The sudden and sharp population loss that occurred in 1973 may be considered the major influence on the indicators chosen for analysis. This loss was the motivating factor in the Island economic and housing realignment that has taken place. The drive by local Governments to find a new population to replace the former has been somewhat successful, especially in housing, but has not been able to relieve all the stress placed on local governments for service and infrastructure expenditures.

The output descriptive indicators, as stated previously, are the result of previous constraints and policy decisions. Overall it appears that these outputs are generally negative when placed in the context of the problem. The impact of the new population on these descriptors seems to indicate that the overall effects will be negative, particularly in the area of housing.

#### Side Effect Indicators

The side effect indicators are consequences of a policy decision that may have been anticipated or unanticipated. This indicator is able to illustrate social, environmental and demographic change that may be the consequences of a policy deviation.

The change in the quality of life has been demonstrated by the demographic change that has occurred since 1970. The number of Aquidneck Island residents under the poverty line has dropped significantly. This can be correlated with the decreasing numbers of minority citizens on Aquidneck Island,

Table XXII

Side Effect Indicators	1970	1980	Percent Change '70-'80
1. Change in quality of life.			
a. Number of residents under poverty line	10,111	4,475	- 66%
b. Percent of units built before 1939.	52.5%	29.27%	-23.23%
c. Number of elderly (over 65 years of age).	5,064	6,697	+ 24%
2. Job opportunities on Aquidneck Island	38,844	73,591	+ 48%
3. Displacement of local citizens (total of 3 community populations).	76,704	60,732	- 21%
4. Gentrification - minorities on Aquidneck Island	5,490	4,003	- 27%
5. Environmental Effects	N/A	N/A	
* - Includes all listed job categories in the Census including part-time.			
N/A- Not applicable in figures.			

as it appears that the Island is in a phase of gentrification as twenty-seven percent of the minority population has migrated out of the area or for other reasons. Along this line the number of elderly citizens on Aquidneck Island has increased during this period, and this population group has needs that must be met in the housing market.

Conversely, the overall of age of the residential units on Aquidneck Island has dropped. In 1980 only 29.3 percent were built before 1939. This number reflects the many condominium units built and converted on the Island, while also including the pre-1978 single family boom (there were 451 housing starts in 1973 in Newport County). Job opportunities on Aquidneck Island have also seen a positive increase as evidenced by the aggregate number presented in this indicator and in the selected occupations data for output descriptive indicators. This positive growth sign has shown flexibility in the jobs that the local economy has to offer as well as showing support for the local housing through employment and wages.

The environmental effects of the Navy reassignment have been documented by the NETC Environmental Statement and State-Wide agencies. The frigates themselves will increase the pollution in the immediate berthing area of Coddington Cove. Stagnating water, increased possibilities of oil spills and the dumping of paint, paint scraping and debris may pose serious problems including potential toxification from metals and oil to marine life.

Traffic movements will also increase during peak hours, there by producing a higher level of emissions for both land

traffic and marine traffic. These emissions can be monitored by State officials and possibly dealt with through established means.

The environmental impact most directly associated with the housing market is the potential development of housing on watersheds and environmentally sensitive areas. An appreciable amount of land in these categories are currently in agricultural use and the State agricultural land preservation legislation notwithstanding, have the potential for development especially in Middletown, where water and sewer lines are currently in place. This type of conversion is happening now in Middletown where former farming families are divesting themselves of large holdings which are currently being subdivided and developed.

Displacement of local citizens was a variable that sheds an indirect light on the issue at hand. For this issue, data was difficult to acquire, so a combination of factors were used. The data analyzed reflects a decrease of twenty-one percent in the population and alone sheds very little new light on the issue. When correlated with the Navy decrease in population in 1973, it appears that approximately 8,500 additional citizens relocated possibly because of the economic down turn freeing up segments of the housing market. Displacement of local citizens can also be viewed in a different type of historical perspective which could suggest the minority migration off the Island because of increased housing prices, median income levels and sustained vacancy rates. This view of local displacement is held by local social

service agencies that have been working in the housing area for sometime and will be the displacement aspect considered here.

This indicator was the most difficult to assign a value for policy direction. The quality of life indicators taken alone seem to point to some very positive change for Island citizens, especially if viewed with current job opportunities. However, when all of these variables interacted it appeared that the side effects were essentially negative because of the importance of the environmental and demographic changes that have been shown.

### Summary

The indicators chosen for this model have been developed and analyzed to test the social indicator model and evaluate the data available and its reaction to the model. The narrative for each indicator has attempted to show the purpose of the indicator as well as the interaction of the indicators with each other. The policy designation of positive or negative for each was intended to show the indicators support or discouragement for the Navy relocation policy and its potential effect.

An evaluation of model effectiveness will be discussed in Chapter Four and a further discussion of data can be reviewed in Appendix B.

Variable interaction was often most significant within indicator types. Each indicator component was influenced by each other, but it did appear that in each indicator one component weighed heavier than the rest. The negatively



correlated indicators consistently outweighed the indicators that had a positive correlation in the context of the problem.

The interaction between variables was significant because of the interdependency of many of the components viewed. When the indicators were viewed in an aggregate sense, the importance of the single indicator was either lessened or increased because of the other variables influenced on them. The interaction between variables was the key to understanding how they affected the problem and to what degree.

## CHAPTER FOUR

### Findings and Critique of Model

#### Introduction

This chapter will review the findings of the analysis of Chapter Three by the overall impact of the indicators in relation to the relocation decision. It will also discuss any perceived or actual change in the quality of life on Aquidneck Island that may bear a relationship to the housing market.

The critique of method will analyze the model's performance in its development of a base for policy decisions and evaluation.

#### Findings

The findings of the analysis, as presented by the social indicator model, were generally classified as having a negative direction in relationship to the study question at hand. (See Chapter Two for a discussion of negative-positive policy directions.) The indicators were analyzed in an independence sense and in an interdependent sense within indicator type and by mixing the major categories together, (Policy instrument, non-manipulable, analytic, output and side effect indicators), to get an overall picture of how the policy decision will impact on the Aquidneck Island housing market.

#### The Importance of Policy Instrument Indicators

The housing trends that appeared to be the most significant were those in the Policy Instrument category. The

opinions and perceptions offered by local zoning officials were characterized by a cautious attitude towards more residential growth that reflected, in their opinion, the feelings projected by local citizens. Budgetary constraints and large increases for services and infrastructure helped illustrate a basis for this opinion as well as the negative change in revenue returned from the State of Rhode Island to the local municipalities. The smaller population base of 1980 also has helped contribute to the stress felt by these communities in terms of funding for services. While an increase in population may help ease the tax burden, there is no guarantee how permanent this Navy population will become. The 1973 Relocation appears to have given many citizens a cautious approach to this policy.

The housing subsidy trends identified showed an increased number of programs available to those in the low-moderate income categories. The increase in program availability reflects an increased demand for low-moderate income rental levels that the open housing market cannot meet. The availability of this service has grown even though Aquidneck Island income levels, job opportunities and Day Care Center/Nursery School enrollments have improved. The demand for housing assistance in 1980 seems to be eminenting from a larger elderly population since the number of minority residents has declined. The local community contributions to social service/welfare programs have also risen, in part due to federal cutbacks, but also to meet needs of both the elderly and low-moderate populations that are going unmet.

When the two public policy instruments, Zoning Ordinance/ local attitude and Housing subsidy indicators are examined seperately and interdependently within the model they appear to strongly suggest a negative reaction and acceptance of the Navy relocation decision.

The mortgage availability indicator was the weakest in the policy set. Private financing sources were reluctant to disclose data, which also effected the evaluation of Federal mortgage programs, since the private financial institutions administered them. In this category, it could be conclusions that in 1980, the private source dealt with, appeared committed to granting mortgages on Aquidneck Island. The number of mortgages in 1980 appear to have been effected by the economic trends that generally depressed the housing market regionally, as well as locally. The low number of housing starts and a stable rental vacancy rate are evidence of this.

The new RIHMFC program has had a substantial impact on Aquidneck Island granting many the chance to become first-time buyers. This program has allowed low-moderated residents to leave the rental market as buyers, but because of the program's stringent financial requirements in the area of down payments and escrowed money, it is felt that the majority of the buyers are close to the income ceiling in the moderate income category, rather than spread out through the cateogry.

The Navy relocation policy recognizes the National and Regional defense as its main priority. Geographic considerations as well as the existing Navy site and NETC activity made Aquidneck Island an attractive choice. Even though the

Navy has recognized the existing constraints in the Aquidneck Island rental market, including the consequences that most likely will effect low-moderate income citizens, the policy decision to relocate has been made. Local and regional authorities have been cautious in encouraging the move primarily because of the pressures put on the housing market, but are also reluctant to become vocally opposed because of potential economic gains involved. This situation has lead to strong State lobbying for the frigates, while Aquidneck Island has said little to encourage or deter the move.

The quality of life indicators (refer to Chapter Three) have been illustrative of the change that occurred during the transition period when the Navy presence was abruptly reduced. These changes have had an impact on the housing market as previously evidenced in the above analysis. It appears that while median income and job opportunities have improved for most residents, Aquidneck Islanders are also spending more for public assistance and have more subsidized housing units on the Island than ever. A large elderly population, may account for some of this, but a decline in the minority population and the number of residents qualifying for poverty line income status tend to question this development. It does appear that while the number of those in need of public assistance is declining, that the level of assistance they need has increased.

### Assessment

This analysis has shown that the decision to relocate four frigates to Aquidneck Island will effect the Island

residents in a number of ways, primarily negative. Increased stress on town services and infrastructure, (excluding schools) within the framework of a competitive housing market, and particularly in the rental market may force current residents to re-think their life style in terms of housing choice. It appears that low and moderate income residents will become "squeezed out" by the new competition. Local communities should look closer at these housing market considerations when negotiating with the Navy. Officials involved in scheduling and implementation of the policy decision should balance economic possibilities with the housing concerns presented here to make a better co-ordinated policy decision for the local communities and the Navy on Aquidneck Island.

#### Critique

This critique is concerned with the selection of indicators chosen to measure change and the development of the model itself in the formation of a policy decision base.

The indicators chosen were assumed to be qualitifiable and that the output indicators, in particular, could measure the change that has occurred in the housing market over time. As stated in the analysis section of this chapter, the weakest indicator in the model was in the policy set for measuring private mortgage availability in terms of the number granted. The fault in this particular instance was not in indicator selection but in data availability which may possibly been avoided if the investigator, such as a government or private firm, had more leveraging ability.

It was also accepted that the changes in the housing market could be quantified and measured. This has been accomplished through the variety of indicators that have been tested in this model. The majority of the data used for the model was obtained from governmental agencies and was the most useful and the easiest to assimilate for the purpose of this model. The major problem for testing this model came from the data obtained or not obtained from private sources. These institutions were very reluctant to give out what they considered "performance" indicators, even though they have been required to file reports on mortgage amounts granted since 1975.

Interpretation of the data was facilitated by the model and the interdependencies that became apparent. The social indicator method has proved to be an excellent approach to analyzing the indicators that are needed to build the data base needed for policy formation. A deficiency in this model, that has not always been presented in the traditional literature, was the exclusion of environmental indicators that may have shed a more illustrative view on the change in the quality of life on Aquidneck Island. Unfortunately, the only indicator of this type examined was of open space/vacant land.

The social indicator model has also illustrated its flexibility in terms of the mode of analysis. The data needed and generated by the model can be as easily analyzed by human hand as it can by using such planning tools as computerized regression analysis. This flexibility means that the method may be used as the main analysis tool, or as a

backup check for another method.

Construction of the actual model and the availability of data that can be used to check analysis results has also become apparant through use of the social indicator model. It became apparent that the substitution of similiar, but significantly different data into the indicator type could serve as a check for model dependability in the analysis stage. Unfortunately it has to be recognized that this substitution process could also bias the data and analysis product. The flexibility of the model through the substitution of data also has the ability to illustrate to the policy maker which data set illustrates the most important influence on the policy question and can indicate whether the indicator will have a negative or positive effect on the intended policy.

In summary, a social indicator model that monitors trends and change over time can be a useful method to evaluate a previous policy decision as well as form the base for a developing policy.



APPENDIX A

PROGRAM DESCRIPTIONS:  
FEDERAL ASSISTANCE PROGRAMS  
FOR RENTAL HOUSING

Section 8 (U.S. Housing Act of 1937, as amended)

Lower-Income Rental Assistance: The U.S. Department of Housing and Urban Development makes up the difference between what a lower-income household can afford and the fair market rent for an adequate housing unit. No eligible tenant need pay more than 25 percent of adjusted income toward rent. Housing thus subsidized by HUD must meet certain standards of safety and sanitation, and rents for these units must fall within the range of fair market rents as determined by HUD. This rental assistance may be used in existing housing or in new construction or, substantially rehabilitated units. Different procedures apply in each case.

Local public housing agencies administer the existing housing program, certifying eligible tenants, inspecting the units proposed for subsidy, and contracting with approved landlords for payment. (Tenants execute separate leases with landlords to pay their share of rent.)

Non-profit and profit-motivated developers, alone or together with public housing agencies, submit proposals for substantial rehabilitation or new construction in response to invitations from HUD; or they may apply to their State housing finance agency. On approval of the proposals, HUD contracts to subsidize the units to be occupied by eligible families.

Tenants must be lower-income households with incomes amounting to 80 percent of the area median income or less. Project sponsors may be private owners, profit-motivated and non-profit or cooperative organizations, public housing agencies and State housing finance agencies.

(Program Number in Catalog of Federal Domestic Assistance: 14.156)

Section 23 (U.S. Housing Act of 1937, as amended)

Low-Income Leased Public Housing: The U.S. Department of Housing and Urban Development pays basic annual contributions which permit local public agencies to lease decent private housing for low-income families at rents they can afford. The annual contributions make up the difference between the rents paid to private owners (plus local public agency operating expenses) and what low-income tenants can afford. That amount is based upon the tenant income but may not exceed 25 percent of adjusted income.

This program has been replaced by the Section 8 Lower-Income Rental Assistance Program. Section 23 units may be converted to the Section 8 program.

Section 101 (Housing and Urban Development Act of 1965)

Rent Supplements: The U.S. Department of Housing and Urban Development pays rent supplements on behalf of eligible tenants to certain private owners of insured multifamily housing. The payment makes up the difference between 25 percent of a tenant's adjusted income and the fair market rent determined by HUD. However, the subsidy may not exceed 70 percent of the HUD approved rent for the specific unit.

Private non-profit, limited dividend, cooperative, or public agency sponsors carrying mortgages insured under the following programs may apply for rent supplements: Sections 221(d) (3), 231, 236, and Section 202. Eligible tenants are limited to low-income households that qualify for public housing and are either elderly, handicapped, displaced by government action, victims of national disaster, occupying substandard housing, or headed by a person serving on active military duty.

New rent supplement contracts are no longer available.

(Program Number in Catalog of Federal Domestic Assistance: 14.149.)

Section 202 (Housing Act of 1959, as amended)

Direct Loans of Housing for the Elderly or Handicapped: The U.S. Department of Housing and Urban Development makes long-term direct loans to eligible, private, non-profit sponsors to finance rental or cooperative housing facilities for elderly or handicapped persons. Participation in the Section 8 Lower-Income Rental Assistance program is required for a minimum of 20 percent of the Section 202 units.

Private, non-profit sponsors may qualify for loans. Households of one or more persons, the head of which is at least 52 years old or is handicapped, are eligible to live in these units.

(Program Number in Catalog of Federal Domestic Assistance: 14.157.)

Section 207 (National Housing Act, as amended)

Basic Mortgage Insurance for Rental Housing: The U.S. Department of Housing and Urban Development insures mortgages made by private lending institutions to finance the construction or rehabilitation of multi-family rental housing by private or public developers. Developments, whether in urban or suburban areas, should be able to accommodate moderate-income

families (with or without children) at reasonable rents.

(Program Number in Catalog of Federal Domestic Assistance: 14.134.)

Section 220 (National Housing Act, as amended)

Mortgage Insurance in Urban Renewal Areas: The U.S. Department of Housing and Urban Development insures mortgages on new or rehabilitated housing in designated urban renewal areas.

This program is not intended to aid lower-income households, but rather to eliminate slum conditions and prevent the spread of blight in urban areas.

(Program Number in Catalog of Federal Domestic Assistance: 14.139.)

Section 221(d) (3)MR (National Housing Act, as amended)

Insurance on Market-Interest-Rate Mortgages for Low- and Moderate-Income Rental Housing: The U.S. Department of Housing and Urban Development insures mortgages on moderate-cost rental units, either newly constructed or substantially rehabilitated by public, non-profit, cooperative, limited-dividend, builder-seller, or investor sponsors. Profit-motivated sponsors are eligible under the similar Section 221(d) (4).

(Program Number in Catalog of Federal Domestic Assistance: 14.137.)

Section 221(d) (3)BMR (National Housing Act, as amended)

Insurance on Below-Market-Interest-Rate Mortgages for Low- and Moderate-Income Housing: This program had the same provisions as the Market Rate Program described above, but also included a subsidy to reduce the effective interest rate (to as low as three percent), allowing reduced costs to be passed along to the tenant as lower rents.

This program was replaced by the Section 236 Program (see below).

Section 221(d) (4) (National Housing Act, as amended)

Mortgage Insurance on Rental Housing for Moderate-Income Families: The U.S. Department of Housing and Urban Development insures mortgages on moderate-cost rental units, either newly constructed or substantially rehabilitated by profit-motivated sponsors.

(Program Number in Catalog of Federal Domestic Assistance: 14.123.)

Section 223(e) (National Housing Act, as amended)

Mortgage Insurance on Housing in Older, Declining Areas: The U.S. Department of Housing and Urban Development may use this program to supplement insurance under one of the Title II (National Housing Act) insurance programs described above. If the proposed development would not be eligible for one of those programs because of its location in a declining area, but appears reasonably viable, considering the need for such housing in that area, the development can be insured under a Title II program "pursuant to Section 223(e)."

(Program Number in Catalog of Federal Domestic Assistance: 14.123.)

Section 231 (National Housing Act, as amended)

Mortgage Insurance on Rental Housing for the Elderly or Handicapped: The U.S. Department of Housing and Urban Development insures mortgages to build or rehabilitate multi-family structures for rental to persons at least 62 years old or handicapped.

(Program Number in Catalog of Federal Domestic Assistance: 14.138.)

Section 236 (National Housing Act, as amended)

Mortgage Insurance and Interest Reduction Payments on Rental Housing for Lower-Income Families: The U.S. Department of Housing and Urban Development insured and paid interest subsidies on mortgages to reduce the effective interest rate to as low as one percent, reducing monthly rents in new or rehabilitated rental units. HUD currently pays additional subsidies to cover the difference between tenant contributions and actual operating costs. Tenants contribute 25 percent of adjusted income, or the basic rent, whichever is greater.

Non-profit, limited-dividend or cooperative organizations; or private builders or investors who sell the development to such organizations were eligible under this program until its suspension in 1973.

(Program Number in Catalog of Federal Domestic Assistance: 14.103.)

Section 515 (Housing Act of 1949, as amended)

Rural Rental Housing Loans: The Farmers Home Administration, U.S. Department of Agriculture makes direct loans to public or private organizations to build or rehabilitate rental or cooperative housing for lower-income or elderly households. Loans are usually limited to developments in communities of less than 10,000 people, but places up to

20,000 population may be eligible.

(Program Number in Catalog of Federal Domestic Assistance: 10.415.)

Public Housing (U.S. Housing Act of 1937, as amended)

Low-Income Public Housing: Local public housing agencies acquire or develop, own and operate rental housing for low-income families. This housing is financed through the sale of local tax-exempt bonds. The U.S. Department of Housing and Urban Development makes annual contributions to the local housing agency to pay off the bonds. Rents are based on residents' ability to pay, and contribute to the cost of managing and operating the housing.

(Program Number in Catalog of Federal Domestic Assistance: 14.146.)

R.I. HMFC (Chapter 42-55, General Laws of Rhode Island of 1956 as amended)

Rhode Island Housing and Mortgage Finance Corporation: This quasi-public corporation was formed by the General Assembly in 1973 to provide a stable supply of funds for residential financing. The proceeds of its tax-exempt revenue bond sales provide construction and/or permanent financing for multi-family rental housing developments. Some of these developments are Federally insured under one of the programs described above, some are not.

The Corporation also administers Section 8 Rental Assistance funds in the multi-family developments it has financed.

APPENDIX B

## Data Base Characteristics

The data base used in this test of the social indicator model was primarily taken from the United States Census, 1970 and 1980 series. The U.S. Census material was chosen for its continuity, comprehensiveness and availability. The Census material used in this problem was easily used and fit well the needs of the problem.

While Census material was the primary data set, data was obtained from the City of Newport, Towns of Middletown and Portsmouth, as well as the State of Rhode Island and the United States Navy. Overall, when dealing with government materials, the data was in usable form and to a certain extent easily verifiable. Interviews with local and Navy officials were frank and informative, but also communicated, not only facts, but the perceived needs of what the local citizens expected from the governments of Aquidneck Island in the matters of finances and planning.

The data used from the banking sources was not only lacking in detail but also unobtainable from all but one private source. The data used in the private mortgage category was unfortunately inadequate for measuring change over time. While this mortgage indicator (see Policy Instrument Indicators), did show an increase in mortgages over ten years, this may have been the case only in this particular bank.

Data was also lacking in the mortgage availability category for the Rhode Island Housing and Mortgage Finance Corporation. In this instance, cooperation was not the pro-



blem, but rather the length of the programs existence. Since the RIHMFC mortgage is only three years old, it was hard to measure what the overall impact was in the Island mortgage market. The irregular intervals of bond issues that support this program also contributed to the problem of measuring impact.

Overall, the data base used is judged to be generally good, especially in the area of data collected by local, State and Federal agencies.

APPENDIX C

## Survey Questions Asked of Local Planning Officials

1. Is your Town or City growing at a rate that most citizens are happy with?
2. Do you feel that local citizens would like to see more or less housing growth in your community?
3. How do you think that the Navy reassignment of five hundred families will effect your communities housing?
4. Do you think your zoning ordinance is adequate to cope with growth pressures we have just discussed?

## Footnotes

1. United States Department of Commerce, Bureau of the Census, 1980 Census of Population (Washington, D.C.; Government Printing Office, 1981), p. 41-92.
2. United States Navy, Naval Facilities Engineering Command. Draft Environmental Statement Possible Long-Range Homeporting at Naval Education and Training Center, Newport, Rhode Island, (Philadelphia: U.S. Navy, (1982)), p. 3-5.
3. Ibid., p. 3-6.
4. "The Navy in Newport". The Providence Sunday Journal, 26 June 1983, Section B, p. B-5.
5. Ibid., p. B-6.
6. Ibid., p. B-4.
7. Ibid., p. B-2.
8. The City of Newport, Rhode Island, "The First Two Hundred and Thirty-Five Days, A Summary of the Impact of Navy Cutbacks on Aquidneck Island." Newport, Rhode Island, 1973 (Mimeographed), p. 3.
9. Ibid., p. 5.
10. "The Navy in Newport". The Providence Sunday Journal, 26 June 1983, Section B, p. B-6.
11. Ibid., p. B-6.
12. Ibid., p. B-6.
13. Ibid., p. B-6.
14. The City of Newport, Rhode Island, "The First Two Hundred and Thirty-Five Days, A Summary of the Impact of Navy Cutbacks on Aquidneck Island." Newport, Rhode Island, 1973 (Mimeographed), p. 4.
15. Ibid., p. 9.
16. "The Navy in Newport". The Providence Sunday Journal, 26 June 1983, Section B, p. B-6.
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19. United States Department of Commerce, Bureau of the Census, 1980 Census of Housing and Social Characteristics. p. 41-72.
  20. City of Newport, Rhode Island, The "Multi-Unit Housing in Newport", Newport, Rhode Island, 1977 (Mimeographed), p. 2.
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  24. Interview with Eileen Dwyer, Braemar Realty, Inc., Newport, Rhode Island, 15 October 1983.
  25. United States Navy, Naval Facilities Engineering Command, Draft Environmental Statement Possible Long-Range Homeporting at Naval Education and Training Center Newport, Rhode Island. (Philadelphia: U.S. Navy, (1982)). p. 5-28.

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